



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/528,117	03/17/2000	Naoaki Kodaira	016907/1080	4095

22428 7590 12/02/2003

FOLEY AND LARDNER  
SUITE 500  
3000 K STREET NW  
WASHINGTON, DC 20007

EXAMINER

DASTOURI, MEHRDAD

ART UNIT	PAPER NUMBER
----------	--------------

2623

DATE MAILED: 12/02/2003

15

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/528,117

Applicant(s)

KODAIRA ET AL.

Examiner

Mehrdad Dastouri

Art Unit

2623

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 04 November 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,4-7,9-20,22,25-28 and 30-44 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 4-7, 9-20, 22, 25-28 and 30-44 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. §§ 119 and 120**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.  
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 14.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on November 4, 2003 has been entered.

### ***Response to Amendment***

2. Applicants' amendment filed November 4, 2003, has been entered and made of record.

3. Applicants' arguments have been fully considered but they are not persuasive. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., features explained on Page 35, Lines 1-21 of the specification) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

It is further emphasized that "pixel unit" is a broad limitation. In digital image processing, all processes will be performed based on pixel unit, which is the smallest discrete spatial component of the digital image. Tamagaki (prior arts of record) discloses histogram processing section (Figure 3, Section 70b), multi-leveling section

Art Unit: 2623

(Figure 3, Sections 71a and 71b), synthesizing section (Figure 3, Section 71c), density converting section (Figure 3, Section 71d) and scaling section (Figure 3, Section 71e), etc. All discrimination and processing performed by these sections (first, second, third, etc., discriminating means and processing means) are based on pixel unit.

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1, 4-7, 9-15, 19, 20, 22, 25-28, 30-36 and 40-42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tamagaki (U.S. 5,999,646) in view of Nakkiran et al (U.S. 6,134,567).

Regarding Claim 1, Tamagaki discloses an image processing apparatus comprising:

input means for inputting image data of an original image (Figure 2, Scanning Unit 2; Column 6, Lines 64-67, Column 7, Lines 1-2);

discriminating means for extracting a predetermined region by using a feature of pixel of the image data input from the input means, and for discriminating an attribute of the region (Figure 3, Histogram-processing Section 70b; Column 8, Lines 5-12);

determining means for, on the basis of the distribution of the regions attribute of which discriminated by the discriminating means,

determining the type of the image data as at least one type selected from the group consisting of image data of uniform background, image data of dot background in the entire screen, image data of dot photo only, image data of continuous gradation photo only, image data of which region can be discriminated by rectangle, and image data of which region cannot be discriminated by rectangle (Figures 1A-1C and 3, Histogram-processing Section 70b, Image-Processing Unit 71; Column 10, Lines 42-67, Column 11, Lines 1-13. The type of the image is determined, based on the histogram data, as text document or tone photos.);

second discriminating means for discriminating the image type of the image data received from the input means in pixel unit, when the determining result by the determining means is a specified result (Figures 1A, 1B, 3 and 4, ; Column 8, Lines 26-53); and

second processing means for processing the image data as specified, on the basis of the result discriminated by the second discriminating means (Figures 1A, 1B, 3 and 4; Column 8, Lines 54-67, Column 9, Lines 1-20; Column 15, Lines 15-49).

Tamagaki do not explicitly disclose means for converting at least one of resolution, compression rate, and number of colors of the image data, depending on the type determined by the determining means.

Nakkiran et al disclose a printer device driver system for high resolution alphanumeric character generation including means for converting the resolution of the image data, depending on the type of the image data determined based on the extracted features of the image (Figures 1 and 2A; Column 5, Lines 11-38).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Tamagaki's invention according to the teachings of Nakkiran et al to convert at least one of resolution, compression rate, and number of colors of the image data, depending on the type determined by the determining means because it will separate resolution of the discriminated regions of the image data such as alphanumeric character text and color graphics to provide maximum flexibility and highest print quality (Nakkiran et al; Column 4, Lines 17-21).

Regarding Claim 4, Tamagaki further discloses an image processing apparatus according to Claim 1, further comprising:

correcting means for correcting the image data by performing at least one of density conversion and filter processing, depending on the type determined by the determining means (Figure 3 Column 7, Lines 52-67, Column 8, Lines 1-53).

Regarding Claim 5, Tamagaki further discloses an image processing apparatus according to Claim 1, further comprising:

changing means for changing the image format of the image data, depending on the type determined by the determining means (Figures 3 and 5; Column 12, Lines 11-67).

Regarding Claim 6, Tamagaki further discloses an image processing apparatus according to Claim 1, further comprising:

processing means for selecting an application of image processing, depending on the type determined by the determining means, setting a parameter, and starting this

application to perform image processing of the image data (Figures 1 and 3; Column 10, Lines 32-67, Column 11, Lines 1-60).

Regarding Claim 7, Tamagaki further discloses an image processing apparatus according to Claim 1, further comprising:

means for performing specified processing on the basis of the attribute of the region discriminated by the first discriminating means, on the image data in every region, when the determining result by the determining means is a specified result (Figures 1 and 3; Column 10, Lines 32-67, Column 11, Lines 1-60).

Regarding Claim 9, Tamagaki further discloses an image processing apparatus according to Claim 1, further comprising:

setting means for setting for pixel unit discriminating process on the basis of the determining result by the determining means (Figure 4, Function-setting 113; (Column 9, Lines 56-67, Column 10, Lines 1-9);

wherein the second discriminating means discriminates the image type of the image data received from the input means in pixel unit on the basis of the setting by the setting means, when the determining result by the determining means is the specified result (Figures 1A, 1B, 3 and 4, ; Column 8, Lines 26-53).

Regarding Claim 10, Tamagaki further discloses an image processing apparatus according to Claim 1, wherein the second discriminating means discriminates the image type of the image data received from the input means in pixel unit, when the determining means determines that it takes more than a specified time for determining (Figure 5; Column 15, Lines 36-67, Column 16, Lines 1-21).

Regarding Claim 11, Tamagaki further discloses an image processing apparatus according to Claim 1, wherein the second discriminating means determines the discrimination precision of the first discriminating means, and when the discrimination precision is below a specific value, the second discriminating means discriminates the image type of the image data received from the input means in pixel unit (Figure 5; Column 15, Lines 36-67, Column 16, Lines 1-21).

Regarding Claim 12, Tamagaki further discloses an image processing apparatus according to Claim 1, wherein the second discriminating means determines the complicatedness of the first discriminating means, and when the complicatedness is above a specific value, the second discriminating means discriminates the image type of the image data received from the input means in pixel unit (Figure 5; Column 15, Lines 36-67, Column 16, Lines 1-21).

Regarding Claim 13, Tamagaki further discloses an image processing apparatus according to Claim 1, further comprising:

storing means for receiving the image data from the input means, performing a first process on the image data parallel to the determining process of the determining means to obtain a first result (Figure 3, Histogram Processing), further performing a second process different from the first process to obtain a second result, and storing them in a memory region (Figure 3, Error-Scattering, Compressing, etc.; Column 7, Lines 52-67, Column 8, Column 9, Lines 1-2); and



means for reading out and outputting either one of the first result and second result from the storing means on the basis of the determining result of the determining means (Figure 3, Output Unit 72; Column 9, Lines 3-28).

Regarding Claim 14, Tamagaki further discloses an image processing apparatus according to Claim 1, further comprising:

third discriminating means for discriminating the structure of the background from the extracted region, and judging the type of the image data on the basis thereof (Figure 3; histogram processing section (Section 70b); multi-leveling section (Sections 71a and 71b); synthesizing section (Section 71c); density converting section (Section 71d) and scaling section (Section 71e) are first, second, third, etc., discriminating means and processing means; Column 10, Lines 42-56).

Regarding Claim 15, Tamagaki further discloses an image processing apparatus according to Claim 1, further comprising:

means for judging presence or absence of character from the distribution of attribute in each region discriminated by the first discriminating means, and judging the type of the image data on the basis thereof (Column 10, Lines 42-56).

Regarding Claim 19, Tamagaki further discloses an image processing apparatus according to Claim 1, further comprising:

judging means for judging the type of the image data, regardless of the content of the original mode given from the user, on the basis of the distribution of the attribute of each region discriminated by the first discriminating means (Column 13, Lines 6-31).

Regarding Claim 20, disclose an image processing apparatus according to Claim 1, wherein the second discriminating means discriminates the image information of the image data received from the input means in the pixel unit according to the judging result when the judging result by the judging means is the specified result (Figures 1A, 1B, 3 and 4, ; Column 8, Lines 26-53).

With regards to Claim 22, arguments analogous to those presented for Claim 1 are applicable to Claim 22.

With regards to Claim 25, arguments analogous to those presented for Claim 4 are applicable to Claim 25.

With regards to Claim 26, arguments analogous to those presented for Claim 5 are applicable to Claim 26.

With regards to Claim 27, arguments analogous to those presented for Claim 6 are applicable to Claim 27.

With regards to Claim 28, arguments analogous to those presented for Claim 7 are applicable to Claim 28.

With regards to Claim 30, arguments analogous to those presented for Claim 9 are applicable to Claim 30.

With regards to Claim 31, arguments analogous to those presented for Claim 10 are applicable to Claim 31.

With regards to Claim 32, arguments analogous to those presented for Claim 11 are applicable to Claim 32.

With regards to Claim 33, arguments analogous to those presented for Claim 12 are applicable to Claim 33.

With regards to Claim 34, arguments analogous to those presented for Claim 13 are applicable to Claim 34.

With regards to Claim 35, arguments analogous to those presented for Claim 14 are applicable to Claim 35.

With regards to Claim 36, arguments analogous to those presented for Claim 15 are applicable to Claim 36.

With regards to Claim 40, arguments analogous to those presented for Claim 19 are applicable to Claim 40.

With regards to Claim 41, arguments analogous to those presented for Claim 20 are applicable to Claim 41.

With regards to Claim 42, arguments analogous to those presented for Claim 1 are applicable to Claim 42. Tamagaki further discloses image forming means for forming an image on a recorded medium on the basis of the image data processed as specified by the processing means (Figure 3, Image Output Unit 72; Column 9, Lines 3-27).

6. Claims 16, 37 and 44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tamagaki (U.S. 5,999,646) further in view of Nakkiran et al (U.S. 6,134,567) and Nakao et al (U.S. 6,141,443).

Regarding Claim 16, neither Tamagaki nor Nakkiran et al disclose an image processing apparatus according to Claim 1, further comprising:

judging means for judging the rectangle information and the type of the image data on the basis of the distribution of the attribute in each region discriminated by the first discriminating means.

Nakao et al disclose a character extraction apparatus comprising

judging means for judging the rectangle information and the type of the image data on the basis of the distribution of the attribute in each region discriminated by the discriminating means (Figures 56-58; Column 40, Lines 36-67, Column 41, Lines 1-24); and

processing means for processing the data as specified on the basis of rectangle information and the type of the image data judged by the judging means (Figures 56-58; Column 41, Lines 25-33).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Tamagaki and Nakkiran et al combination according to the teachings of Nakao et al to judge rectangle information and the type of the image data on the basis of the distribution of the attribute in each region discriminated by the discriminating means because it will enhance the output result and will improve the overall image processing for different applications including character recognition.

With regards to Claim 37, arguments analogous to those presented for Claim 16 are applicable to Claim 37.

With regards to Claim 44, arguments analogous to those presented for Claims 1 and 16 are applicable to Claim 44.

7. Claims 17, 18, 38, 39 and 43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tamagaki (U.S. 5,999,646) in view of Nakkiran et al (U.S. 6,134,567) and Fan et al (Segmentation and Classification of Mixed Text/Graphics/Image Documents).

Regarding Claim 17, neither Tamagaki nor Nakkiran et al disclose third discriminating means for discriminating the page information which is the image type of each page of the original image of the image data when the first discriminating means cannot divide the image data into a plurality of rectangular regions, and determining the type of the image data on the basis thereof.

Fan et al disclose an image processing apparatus comprising:

means for discriminating the page information which is the image type of each page of the original image of the image data when the discriminating means cannot divide the image data into a plurality of rectangular regions, and determining the type of the image data on the basis thereof (Section 2, Pages 1202-1204).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Tamagaki and Nakkiran et al combination according to the teachings of Fan et al to implement further limitations of Claim 17 because it will enhance the output result of the page labeling and will increase the accuracy of text and graphics classification in page layout processing.

With regards to Claim 18, arguments analogous to those presented for Claims 12 and 17 are applicable to Claim 18.

With regards to Claim 38, arguments analogous to those presented for Claim 17 are applicable to Claim 38.

With regards to Claims 39 and 43, arguments analogous to those presented for Claim 18 are applicable to Claims 39 and 43.

***Contact Information***

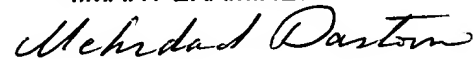
8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mehrdad Dastouri whose telephone number is (703) 305-2438.

The examiner can normally be reached on Monday to Friday from 8:00 a.m. to 4:30 p.m. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amelia Au can be reached on (703) 308-6604.

The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9314 for regular and for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the T.C. Customer Service Office whose telephone number is (703) 306-0337.

**MEHRDAD DASTOURI  
PRIMARY EXAMINER**



Mehrdad Dastouri  
Primary Examiner  
Group Art Unit 2623  
August 4, 2003